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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/973,693

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EXAMINER

WANG, QUAN ZHEN

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/973,693

Applicant(s)

BORODITSKY ET AL.

Examiner

Quan-Zhen Wang

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-8, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chlamtac et al. (Imrich Chlamtac et al., "Scalable WDM access network architecture based on photonic slot routing", IEEE/ACM Transaction on Networking, Vol. 7, February 1999, pages 1-9) in view of Sasayama et al. (U.S. Patent US 5,493,434) and further in view of Tsushima et al. (U.S. Patent US 5,600,466).

Regarding claims 1, 12, and 14, Chlamtac discloses a system (fig. 1) for providing high connectivity communications over a composite packet-switched optical ring network that includes a plurality of nodes, with at least one of the nodes comprising: an optical crossbar switch (fig. 1, bridge; and Section II B on page 5: "the core component of the bridge is a 2x2 space photonic switch", which having at least a first input directly connected to an incoming link of the network, a second input, a first output that is directly connected to an outgoing link of the network, and a second output) connected to said packet-switched optical ring network. Chlamtac differs from the claimed invention in that Chlamtac does not specifically teach that the system comprising a rapidly tunable laser for serially generating a plurality of packets, each

packet being generated at a different wavelength. However, it is well known in the art to use a tunable laser for serially generating a plurality of packets. For example, Sasayama discloses to use a tunable laser for serially generating a plurality of packets (fig. 18). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a tunable laser for serially generating a plurality of packets, as it is taught by Sasayama, into the system of Chlamtac in order to generate optical signals at different wavelength with fewer lasers. The modified system of Chlamtac and Sasayama further differs from the claimed invention in that Chlamtac and Sasayama do not specifically teach a stacker for stacking the plurality of serially generated packets to form a composite packet, and the stacker is interposed between the tunable laser and the crossbar switch. However, a stacker for stacking serially generated packets to form a composite packet is well known in the art. For example, Tsushima discloses a wavelength stacker (fig. 7, combination of delay element 14 and the DEMUX and combiner) for stacking a plurality of serially generated packets to form a composite packet (figs. 4a-4f). In addition, Chlamtac further discloses that the system is based on photonic slot routing and the “‘photonic’ slot carrying information simultaneously on the various WDM channels” (page 2, first paragraph in the left column). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a stacker for stacking a plurality of serially generated packets to form a composite packet, as it is taught by Tsushima, in the modified system of Chlamtac and Sasayama and interposing the stacker between the tunable laser and the crossbar switch in order to form the “photonic

slot" signals carrying information simultaneously on various wavelengths to be routed in the network.

Regarding claim 3, Tsushima further teaches that the stacker also operates as an unstacker to recover and re-serialize the plurality of packets from the composite packet (fig. 8).

Regarding claim 4, Chlamtac further teaches to use the crossbar switch to facilitate a composite packet in a photonic time slot that is being propagated on said packet-switched optical ring network being added to the packet-switched optical ring network at a destination node (*Paragraph B. Node and Bridge Architectures*).

Regarding claim 5, Chlamtac further teaches to use the crossbar switch to facilitate a composite packet being assigned a photonic time slot and added to the packet-switched optical ring network (*Paragraph B. Node and Bridge Architectures*).

Regarding claim 6, Chlamtac further teaches that the optical crossbar switch in the system is wavelength independent (a "space photonic switch" is inherently wavelength independent).

Regarding claim 7, Chlamtac further teaches that the packet-switched optical ring network is a point-to-point network (fig. 1).

Regarding claim 8, Chlamtac further discloses that the optical crossbar switch facilitates a composite packet in a photonic time slot bypassing a given node depending on a position of the optical switch (*Paragraph B. Node and Bridge Architectures*).

3. Claims 2, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chlamtac et al. (Imrich Chlamtac et al., "Scalable WDM access network architecture based on photonic slot routing", IEEE/ACM Transaction on Networking, Vol. 7, February 1999, pages 1-9) in view of Sasayama et al. (U.S. Patent US 5,493,434) Tsushima et al. (U.S. Patent US 5,600,466) and Tsushima et al. (U.S. Patent US 5,600,466) and further in view of Mizrahi (U.S. Patent US 5,748,349).

Regarding claim 2, the modified system of Chlamtac, Sasayama, and Tsushima differs from the claimed invention in that Chlamtac, Sasayama, and Tsushima do not specifically teach that the wavelength stacker further comprising a plurality of optical circulator and a plurality of FBGs connected to and sandwiched between the plurality of optical circulators and the plurality of FBGs are cascaded and equally spaced between the plurality of optical circulators. However, incorporating optical circulator with Bragg grating to pass or prevent specific channels is well known in the art. For example, Mizrahi discloses an optical device comprising a pair of optical circulator and a plurality of FBGs connected to and sandwiched between the pair of optical circulators and the plurality of FBGs are cascaded and equally spaced between the pair of optical circulators (fig. 1). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an optical device, such as the one disclosed by Mizrahi, in the modified system of Chlamtac, Sasayama, and Tsushima to stack and unstuck optical signals in order to add and drop optical signals in the optical network.

Regarding claims 11 and 13, it is inherent that a wavelength not matching a wavelength of a fiber Bragg grating (FBG) bypasses the grating transparently.

4. Claim 9 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Chlamtac et al. (Imrich Chlamtac et al., "Scalable WDM access network architecture based on photonic slot routing", IEEE/ACM Transaction on Networking, Vol. 7, February 1999, pages 1-9) in view of Sasayama et al. (U.S. Patent US 5,493,434)Tsushima et al. (U.S. Patent US 5,600,466) and Tsushima et al. (U.S. Patent US 5,600,466) and further in view of Mesh (U.S. Patent US 6,256,431 B1).

Regarding claim 9, the modified system of Chlamtac, Sasayama, and Tsushima differs from the claimed invention in that Chlamtac, Sasayama, and Tsushima do not specifically teach that the dropped composite packet in the photonic time slot is further distributed to a plurality of user sites connected to the destination node by using Wavelength Division Multiplexing (WDM) techniques. However, it is well known in the art to distribute information to a plurality of user sites using WDM techniques. For example, Mesh discloses to distribute information to a plurality of user sites using WDM techniques (fig. 1; column 1, lines 33-36). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an information distribution method using WDM techniques, such as the one disclosed by Mesh, into the modified system Chlamtac, Sasayama, and Tsushima in order to send information to each designated individual users.

5. Claim 10 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Chlamtac et al. (Imrich Chlamtac et al., "Scalable WDM access network architecture based on photonic slot routing", IEEE/ACM Transaction on Networking, Vol. 7, February 1999, pages 1-9) in view of Sasayama et al. (U.S. Patent US 5,493,434)Tsushima et al. (U.S. Patent US 5,600,466) and Tsushima et al. (U.S. Patent US 5,600,466) and further in view of Adams (U.S. Patent US 6,748,175 B1).

Regarding claim 10, the modified system of Chlamtac, Sasayama, and Tsushima differs from the claimed invention in that Chlamtac, Sasayama, and Tsushima do not specifically teach the dropped composite packet in the photonic time slot is further detected in parallel. However, it is well known in the art to detect composite packet in the photonic time slot in parallel. For example, Adams discloses to drop signals using a DMUX (fig. 2, DEMUX 235) and the signals can be inherently detected in parallel. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a DEMUX to drop composite packet in a photonic time slot, as it is taught by Adams, into the modified system of Chlamtac, Sasayama, and Tsushima in order to separate the multiplexed signals at different wavelengths and detect the information carried by each channel.

### ***Double Patenting***

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference



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claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1-37 of copending Application No. 09/973699. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims in the instant application are broader than the ones in copending Application No. 09/973699, *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982) and *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993), broad claims in the instant application are rejected as obvious double patenting over narrow claims of copending Application. For example, claim 1 of the present invention does not claim "a second composite packet propagating on said core optical ring destined to be dropped at said node for further distribution on said subtending system via said optical crossbar switch, an unstacker for serializing said second composite packet dropped at said node, said unstacker coupled to said optical crossbar switch, and a detector for distributing said serialized packets to a further destination by said subtending system." Therefore, claim 1 of the instant invention is broader than claim 1 of the copending Application.

8. Claims 1-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 48-50, and 52-53 of copending Application No. 09/995692. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims in the instant application are broader than the ones in copending Application No. 09/995692. In *re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982) and In *re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993), broad claims in the instant application are rejected as obvious double patenting over narrow claims of copending Application. For example, claim 1 of the present invention does not claim "at least one second composite packet circulating around said core optical ring for distribution to said second composite packet destination; locating said destination of said second composite packet; dropping said second composite packet at said destination for said second composite packet; and distributing said composite packet by wavelength." Therefore, claim 1 of the instant invention is broader than claim 1 of the copending Application.

9. These are provisional obviousness-type double patenting rejections because the conflicting claims have not in fact been patented.

### ***Response to Arguments***

10. Applicant's arguments with respect to claim 1-14 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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3/4/2006

  
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